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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/624,858 | 07/22/2003 | Serguei Beloussov | 848265-2 | 6544 |

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| EXAMINER | |
|---|---|
| DOAN, DUC T | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2188 | |

DATE MAILED: 09/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/624,858 | BELOUSSOV ET AL. | |
| | Examiner | Art Unit | |
| | Duc T. Doan | 2188 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *06 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-54* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-54* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Status of Claims*

Claims 1-54 are in the application.

Claims 1-54 are rejected.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-54 rejected under 35 U.S.C. 103(a) as being unpatentable over Inagaki et al (US Pub 2004/0010668) and in view of Uemura et al (US 5720026).

As for claim 1, Inagaki describes a computer system operable to provide backup copying of data without suspending an application program accessing the data, comprising: a storage device operable to store block data (Fig 1: #200; page 1 paragraph 20); a backup storage device operable to store block data (Inagaki's Fig 1: #300; page 1 paragraph 20); and an intermediate block data container operable to store block data (Inagaki's Fig 2: #122A, #11A, #120; page 2 paragraphs 24-26), wherein the computer system is operable to copy a data block from the

storage device into the intermediate block data container (Inagaki page 2 paragraphs 24 and 25 describe copying data from the storage device to write data temporary unit and to acquisition unit) and copy a data block from the intermediate block data container into the backup storage device during an online data backup process (Inagaki page 2 paragraph 29 describes data in the acquisition unit will be subsequently transferred to the backup device); wherein the computer system is operable to manage the online data backup process by: compiling a list of data storage blocks located in the storage device that are subject to the data backup process, copying a data storage block to the backup storage device according to the list of data storage blocks (Inagaki describes of preparing snapshots data to be sent to backup device in page 3, paragraph 43. Thus a list of data blocks to be backup must be generated so that data in the halting unit and storage device can be assembled into the acquisition unit accordingly, and subsequently sending data to the backup unit); suspending a write command that is directed to a data storage block that is subject to the data backup process but has not yet been copied, copying the data storage block that is the subject of a write command to the intermediate storage device, executing the write command and copying the data storage block from the intermediate storage device to the backup storage device (Ignagaki describes that halting unit stops the accessing of original data in the storage unit, paragraph 39; writing data into the acquisition units, paragraphs 40-41; release the stop to resume the normal processing using the storage device , paragraph 41; then copying to backup device asynchronously, paragraph 38). Inagaki does not describe the block data aspect of the claim. However Uemura describes an incrementing backup system that use difference maps to keep track a list of data blocks to be backup (Uemura's column 2, lines 20-57). It would have been obvious to one of ordinary skill in the art at the time of invention to include block data as

suggested by Uemura in Inagaki's system to taka advantage of using standard drivers and interface for block devices (Uemura's column 6, lines 15-25).

As for claims 2-5, the claim recite wherein the intermediate block data container is located in a memory location that is external to the computer file system (claim 2); wherein the intermediate block data container is located in the storage device (claim 3); wherein the intermediate block data container is a separate partition of the storage device (claim 4); wherein the intermediate block data container is a file within the file system (claim 5); Inagaki does not describe the claims' detail of intermediate block data container. However, Uemura describes information such as incrementing data, differential maps (corresponding to the claim's intermediate block data) are stored in storage unit; Uemura's column 2 lines 50-55, column 4 lines 45-55). Uemura further describes standard methods whereas data block in a file is accessed via device driver in block mode (Uemura's column 6, lines 16-25). Uemura further describes the files in a storage device whereas the device can be a logical device such as logical volume (Uemura's column 7, lines 5-14). Furthermore, it has been known logical devices are grouped into separate partitions (see Inagaki's page 1, paragraph 22).

As for claim 6, the claim recites wherein the file system is further operable to write dirty pages to the storage device before initiating a data backup process. Inagaki describes that operating system writing data into the storage unit before the backup process is initiated (Inagaki's page 2, paragraph 23).

As for claim 7, the claim recites wherein the computer system is operable to: suspend a write command to the storage device during the data backup process if the intermediate block data container has reached a selected data capacity, and copy a selected amount of data from the

intermediate block data container to the backup storage device. Inagaki describes the process of halting the write command, assemble data to be backup into an acquisition unit, after data is assembled (shifting) successfully in the acquisition unit, the halting unit will release the stop placed on the accessing of the storage devices (Inagaski's page 3 paragraphs 39,40,41).

As for claims 8-10, the claims recites wherein the file system driver translates a write request addressed to a file located in the storage device received from a user process into one or more block write operations (claim 8); wherein the file system driver transmits a write request received from an operating system process (claim 9); wherein the file system driver provides a data block number associated with a block in response to a write command directed to the data block during the online data backup process (claim 10). Inagaski does not describe the claims' detail of a file driver. However Uemura describes such pseudo device driver for block device in column 6, lines 16-48).

As for claim 11, the claim is rejected based on the same rationale as in the rejection of claim 1. Inagaski further describes that in case the data already been transmitted, just add information indicating that the write data has already been transmitted; page 2, paragraph 25.

Claims 12-13,41-42,39,54 rejected based on the same rationale in the rejection of claim 11.

As for claim 14, Inagaski describes in paragraph 43, once the snapshots data has been generated successfully for backup, the halting unit informs operating system to resume the accessing of storage devices.

Claims 15,34,43 rejected based on the same rationale as in the rejection of claim 10.

Claims 16,29,44 rejected based on the same rationale as in the rejection of claim 6.

Claims 17,25,45 rejected based on the same rationale as in the rejection of claim 2.

Claims 18,27,46 rejected based on the same rationale as in the rejection of claim 4.

Claims 19,28,47 rejected based on the same rationale as in the rejection of claim 5.

Claims 20,30,48 rejected based on the same rationale as in the rejection of claim 7.

As for claim 22, upon receiving an indication that the intermediate block data container is close to overload, initiating a temporary slowdown of write operations by slowing down processes whose activity results in write operations into a non-backed-up area. Inagaski describes of monitoring the update permission data frequently and controlling the loading of data in temporary storage units and controlling the backup operations, thus preventing the overloading of data in the intermediate container (Inagaski's page 2, paragraph 24).

As for claim 23, wherein a list of data blocks located in the storage device that are subject to the online data backup process includes all blocks of an underlying storage device used by file system data and does not include free space blocks. Inagaski does not describe the claim detail of data blocks. However, Uemura describes of using differential map information to keep track of blocks in a file to be backup (Fig 6, column 5, lines 8-15).

Claim 24 rejected based on the same rationale as in the rejection of claims 1-5.

Claims 31-32 rejected based on the same rationale as in the rejection of claim 8.

Claim 26 rejected based on the same rationale as in the rejection of claim 3.

Claims 35,49 rejected based on the same rationale as in the rejection of claim 22.

Claims 36,50 rejected based on the same rationale as in the rejection of claim 23.

As for claim 37 the claim recites wherein backed up data blocks are restored on the fly to a different storage device. The claim rejected based on the same rationale as in the rejection of

claims 1-5. Examiner further notes that a logical file system can be automatic created, modified mounted in any number of physical storage devices with file accessing commands .

As for claim 38, the claim recites wherein an order in which data blocks are scheduled for backup is changed based on information received from an external source. Inagaki further describes the backup command can be issued with instruction from an application program (Inagaki's page 1, paragraph 23).

Claim 40 rejected based on the same rationale as in the rejection of claim 1.

Claim 51 rejected based on the same rationale as in the rejection of claim 14.

Claim 52 rejected based on the same rationale as in the rejection of claim 37.

Claim 53 rejected based on the same rationale as in the rejection of claim 38.

***Conclusion***

When responding to the office action, Applicant is advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist examiner to locate the appropriate paragraphs.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc T. Doan whose telephone number is 571-272-4171. The examiner can normally be reached on M-F 8:00 AM 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on 571-272-4210. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin L. Ellis
Primary Examiner